CLAIMS

1. A vapor phase growth apparatus for performing a vapor phase growth of a silicon epitaxial layer on a main surface of a silicon single crystal substrate while heating the silicon single crystal substrate placed on a pocket formed on a susceptor, from both sides, wherein

the pocket has an outer peripheral side part which supports a rear surface of the silicon single crystal substrate and an inner peripheral side part which is kept in a state of being more recessed than the outer peripheral side part in an inside of the outer peripheral side part, and

the susceptor has a warped inverted U-shaped longitudinal sectional shape.

2. The vapor phase growth apparatus as claimed in claim 1, wherein

the pocket is formed for a silicon single crystal substrate having a diameter of 300 mm or more, and

a maximum distance between a bottom surface of the inner peripheral side part in the pocket and a rear surface of the silicon single crystal substrate is less than 0.4 mm.

3. The vapor phase growth apparatus as claimed

in claim 1 or 2, wherein

the susceptor is a type of a single wafer, and

a curvature on a rear surface side of the susceptor is 1.75×10^{-5} mm^{-1} or less.

4. A vapor phase growth method, comprising performing a vapor phase growth of a silicon epitaxial layer on a main surface of a silicon single crystal substrate using the vapor phase growth apparatus as claimed in any one of claims 1 to 3.